

Guidance on the Application of Physical and Chemical Recycling Technologies

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A Solution Space by
Generate Canada

This report was developed by the Canada Plastics Pact, in collaboration with members of the CPP Taskforce on Chemical Recycling.

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CANADA PLASTICS PACT

The Canada Plastics Pact (CPP) is made up of a diverse mix of leading organizations and governments from across Canada's plastics value chain, who are committed to eliminating plastic waste and pollution, while advancing a circular economy for plastics. By fostering innovation, collaboration, and collective action, we are developing, testing, and scaling solutions to overcome the systemic barriers to keeping the right plastics in the economy and all plastics out of nature.

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Background

The Canada Plastics Pact (CPP) is made up of a diverse mix of more than 100 leading companies and other organizations from across Canada's plastics value chain who are committed to eliminating plastic waste and pollution, while advancing a circular economy for plastics. By fostering innovation, collaboration, and collective action, the CPP is developing, testing, and scaling solutions to the systemic barriers that will keep the right plastics in the economy and all plastics out of nature.

CPP emphasizes the importance of reducing, reusing, and redesigning plastic packaging as essential for tackling plastic waste and pollution, and acknowledges the importance of scaling collection, processing, and recycling infrastructure.

CPP recognizes that mechanical, physical, and chemical recycling have roles to play as part of advancing a circular economy for plastics. Effective recycling technologies and infrastructure will enable greater recovery of plastics and their hydrocarbon constituents for use in the manufacturing of new packaging and products. Other benefits beyond the capture of more materials include:

- Unlocking additional applications that can use post-consumer recycled (PCR) content;
- Reducing reliance on virgin plastic; and
- Improving the economics of the overall recycling system.

While physical and chemical recycling technologies and solutions may be able to process a broad range of resins and multi-resin packaging formats in the future, many of these technologies have yet to be proven at scale.

About CPP's Guidance on Physical and Chemical Recycling Technologies

The CPP supports the responsible use of physical and chemical recycling technologies within a broader system designed to advance a circular plastic economy by reducing plastic packaging waste and a reliance on virgin plastic. While some physical and chemical recycling technologies may be a good fit for advancing a circular economy of plastics, others may not. Some may be relatively more expensive. Others may generate negative environmental and/or community impacts as part of their processes which are important to minimize/avoid.

These considerations are important factors for making informed investment decisions with respect to the role of physical and chemical recycling technologies as part of a circular economy for plastics in Canada. Furthermore, due to potential risks, appropriate safeguards must be implemented to protect human and environmental health.

Evaluating physical and chemical recycling technologies was identified as a priority in both the CPP's Roadmap to 2035 (internal for Partners only), as well as its [5-Year Roadmap for Flexible Plastic Packaging in Canada](#) (2022-2027). In 2024-2025, the CPP conducted research, developed a discussion paper for internal engagement providing a list of important considerations when evaluating the role of chemical recycling, and engaged CPP Partners and a broad range of stakeholders through workshops and meetings to better understand the potential contribution of physical and chemical recycling technologies to a circular economy for plastics in Canada.

Target Audience for this Guidance Document

This Guidance Document was developed by the CPP and is intended for CPP Partners and other stakeholders to support the development of and investments in physical and chemical recycling technologies when they are aligned to CPP priorities (including within broader reduction, reuse, redesign, and recycling objectives for a circular economy for plastics), and complementary to mechanical recycling, while also avoiding or minimizing any negative impacts or unintended consequences. The target audiences include:

- **Primary Audience:** CPP Partners, including those looking to develop physical and chemical recycling technologies or facilities seeking to align with the CPP's position on these technologies as part of their evaluation.
- **Secondary Audience:** Governments, NGOs, investors, industry associations, and other external audiences (in Canada or internationally) looking for CPP's "position" on these recycling technologies.

Recycling Technologies Covered in this Guidance Document

A brief description of the various recycling technologies and processes relevant to this Guidance Document is provided below,¹ with a particular focus on physical and chemical recycling technologies.

- **Mechanical recycling** is the traditional recycling process and typically involves: sorting and separating plastics by size, shape, and density; washing to remove organic contaminants; shredding and grinding into flakes and pelletizing for easier processing; melting and extruding the materials. The polymer structure of the plastic is not changed.
- **Physical recycling** uses industrial processes (e.g., solvents, heat, steam, pressure) to remove contaminants and additives from polymers such that the polymers can be directly returned to the manufacture of plastics with their polymeric chemical structure intact. As such, the polymer structure of the plastic is not changed on a molecular level. This category includes purification and dissolution technologies.
- **Chemical recycling** uses heat and/or chemicals to break down the plastic polymers into their molecular building blocks. These processes can vary significantly by type and facility. Some chemical recycling processes produce oils and waxes that are used to create feedstock for new materials, as well as byproducts used for fuel. This category includes:
 - Depolymerization technologies (processes using solvents where reverse polymerization reactions transform plastic into monomers, which can then be re-polymerized into new products through processes such as solvolysis and enzymolysis); and
 - Conversion technologies (processes using heat and catalysts to break the bonds in the polymer chain through processes such as pyrolysis and gasification).

¹ The definitions for the recycling technology categories (i.e., mechanical, physical, and chemical recycling) are aligned with CSA's National Standard of Canada R117:24 Plastics recycling - Definitions, reporting, and measuring. The definitions are also aligned with the U.S. Plastics Pact's Position Paper on the Role of Physical and Chemical Recycling and [ISO 15270-1](#) (Plastics — Guidelines for the recovery and recycling of plastics waste).

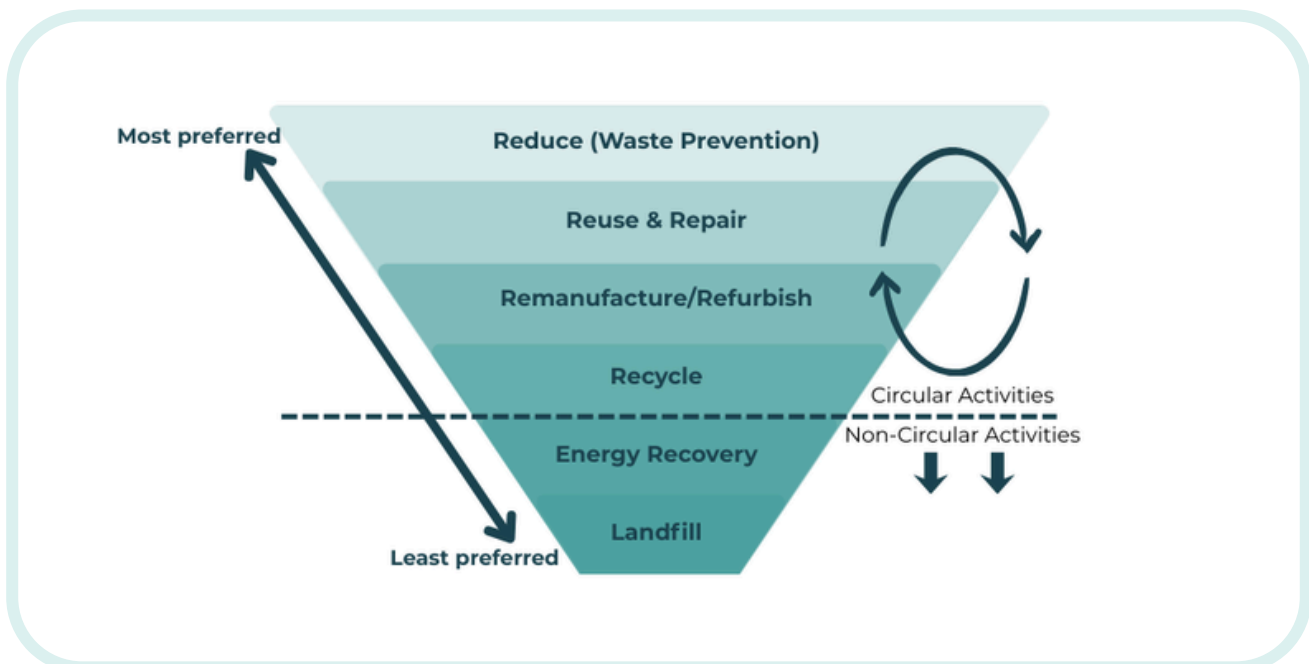
A Guiding Framework for Evaluating Recycling Technologies

Physical and chemical recycling can play a role in a circular plastics economy, but should not be the primary strategy for addressing the plastic waste problem. Reduction and reuse should be first orders of priority, followed by designing for recyclability that favours mechanical recycling, and then physical or chemical recycling. The CPP supports reduction and redesign, referencing a number of guidance documents and frameworks to support this, including but not limited to:

- [Ellen MacArthur Foundation's Upstream Innovation Guide](#)
- [Canadianized Golden Design Rules for Plastic Packaging](#)
- [Association of Plastic Recycler's Design Guide®](#)
- [EEQ's Packaging Ecodesign Guidelines](#)
- [CPP's Pathways to Mono-material Flexible Plastic Packaging Guide](#)
- [CPP's Integrating PCR in Plastic Packaging Guide](#)

These considerations are aligned with the waste-to-resource hierarchy and are designed to maximize and retain the value of materials while minimizing environmental impacts and plastic losses from the system (see Figure 1).

Figure 1: *The 5R Waste-to-Resource Hierarchy Highlighting Circular versus Non-Circular Activities*



Within the *Recycling* tier, technology pathway selection should consider system-level outcomes that include economics, yield, losses, and overall environmental performance. Note that “energy recovery” means extracting or producing energy (including heat, electricity, and/or fuels) from waste conversion and/or incineration.

The CPP’s guidance on physical and chemical recycling technologies aligns with the U.S. Plastics Pact’s Position Paper on [The Role of Physical and Chemical Recycling in a Circular Economy for Plastic Packaging](#) (released in November 2025), as well as the [Responsible Production Guidelines for Advanced/Chemical/Molecular Recycling](#), developed in 2024 by the Ocean Plastics Leadership Network (OPLN) in collaboration with the U.S. Plastics Pact.

The OPLN Guidelines help to ensure operational responsibility related to physical and chemical recycling technologies and facilities. They include 22 performance indicators organized into 4 pillars. CPP’s framework builds on these performance indicators, adapting them within the Canadian context as summarized below.

1. Operational Transparency (see p. 9-10 for more on mass balance accounting)

- a. A third-party validated chain-of-custody (CoC) certification should be obtained, with mass balance as the preferred method for CoC.
- b. Transparent disclosure of the method being used for attribution of feedstock allocated to material outputs within the mass balance protocol should be provided.
- c. Transparent disclosure of the conversion rate of inputs (recyclable feedstock) into outputs for each company in the recycling value chain should be provided.

2. Environmental Impacts

- a. Disclosure of key environmental impacts should be made as determined through independent life-cycle assessment (LCA) tools and third-party reviews in alignment with widely accepted international standardized methodologies (e.g., ISO 14040, ISO 14044, ISO 14067).
- b. Comparative assessments of recycled outputs with conventional products having the same functionality should be undertaken. LCA results should be presented with a direct comparison to virgin plastic production, as well as next to a relevant mechanical recycling benchmark, if possible. Furthermore, for chemical conversion pathways, LCAs should include downstream upgrading and purification steps (e.g., hydrotreatment, distillation, re-polymerization) within the system boundaries for LCA and conversion rate disclosure in order to align with ISO 14040/14044 guidance.
- c. Assessment should be undertaken across key environmental impact categories: climate change; energy and water consumption; emissions of pollutants to land / soil, water, and air (including microplastics and chemicals); and any hazardous and/or residual waste generated.

d. Assessment should be undertaken across key recycling facility operational performance indicators, including:

- i. Disclosure of operating and environmental permits.
- ii. Assurance that hazardous conditions are not created or are minimized as per regulatory requirements in the chemical industry.
- iii. Evidence of a robust Environmental Health & Safety (EHS) program and culture.
- iv. A defined renewable energy program for every facility.
- v. A defined water conservation program for continuous reduction of water intensity at the site.
- vi. A defined waste reduction and management plan/program for both hazardous and non-hazardous waste.
- vii. Site-level environmental impact reporting to their local communities and other stakeholders.

3. **Community, Social, and Human Rights Impacts**

- a. Drive meaningful involvement of all stakeholders, including Indigenous communities.
- b. Embed the United Nations Guiding Principles on Business and Human Rights into business and project operations, including human rights due diligence, remedy, grievance mechanisms, and formally include communities in the decision-making process.
- c. Identify and evaluate environmental and social risks to local communities and minimize any potentially negative impacts.
- d. Promote local economic development while ensuring projects support decent work within the community and are in adherence to all laws and regulations.

4. **Complementarity to Mechanical Recycling**

- a. Physical and chemical recycling inputs should target waste streams which are not or cannot be mechanically recycled economically, at scale, or within a given geography.²
- b. Physical and chemical recycling outputs should typically target recycled-content applications where existing mechanical recycling does not meet quality standards or where physical and chemical recycling outputs can augment mechanical recycling to further increase plastic circularity and bring greater economic value.
- c. In cases where physical or chemical recycling and existing mechanical recycling technologies are technically able to address the same application, pathway selection should be based on comparative assessment of economics, carbon footprint, and overall environmental impacts, without compromising the community, social, and human rights criteria outlined in pillar 3 above.

² **Note:** Mechanical recycling should be considered as a precursor step to sorting plastic materials for a variety of recycling and end market pathways, including physical and chemical recycling.

- d. Proponents should adopt the transparent reporting of inputs (feedstocks and recycled content).
- e. Proponents should adopt the transparent reporting of plastic-to-plastic and other outputs (primary and secondary products and by-products).

The CPP will only support or endorse technologies or projects that have been properly evaluated under the four-pillar evaluation framework outlined above. Note, however, that the CPP will not endorse technologies where results from the assessment demonstrate negative environmental, community, and/or human health impacts that breach relevant Canadian laws and regulations.

Further work may be required to develop specific weighting and/or prioritization of these performance indicators next to one another. For now, however, physical and chemical recycling technology developers and proponents should be looking to measure and track the required information and data under each pillar and performance indicator to establish baselines and to support evidence-based assessments / decision-making.

Chemical recycling technology proponents may also look to receive “Plus” or “Trailblazer” certification under the SCS Certification Standard for Responsible Advanced/Chemical/Molecular Recycling (SCS-004) to demonstrate social and environmental leadership.³

³ More information on SCS-004: [More information on SCS-004: https://www.scsstandards.org/standards/certification-standard-responsible-advanced-chemical-and-molecular-acm-recycling](https://www.scsstandards.org/standards/certification-standard-responsible-advanced-chemical-and-molecular-acm-recycling).

Considerations Regarding Recycling Measurement and Mass Balance Accounting

This Guidance Document refers to existing standard definitions for recycling calculation point, the measurement of recycled materials, and mass balance accounting in order to provide clarity for industry, governments, and other stakeholders in Canada.

In particular, this document references the Canadian Standards Association's definitions and rules as described in its standards document "CSA R117:24 Plastics recycling - Definitions, reporting, and measuring,"⁴ as well as the Bureau de Normalisation du Québec's (BNQ) definition for mass balance accounting from its CAN/BNQ 3840-100/2023 standards document on "Recycled Plastic Content Products."⁵ As with all National Standards of Canada (NSC), both standards are subject to review every five years.

It should be noted that these standards have not been adopted as federal policy at the time of publication.

- **Recycling Calculation Point:** The calculation point is the point in the recycling process at which material is deemed recycled. Where chemical recycling technologies are applied, only the portion of the chemical carrier outputs that are destined to displace fossil resources in the production of plastics or other products shall be considered recycled. Proponents of physical and chemical recycling technologies should follow the standardized definitions and calculation point methods as set out in CSA R117:24.
- **Definition of Recycling Measurement Point:** The measurement point is a place in the recycling process where something is measured or attributed via Mass Balance Accounting. Proponents of physical and chemical recycling technologies should follow the standardized definitions and measurement point methods set out in CSA R117:24.

⁴ See CSA's [R117:24 standard document](https://www.csagroup.org/store/product/2431275/?srsltid=AfmBOooThNTBgwNNi-e90gnJT1ZA-PX8xNaRzPTZ7uJhJi-pDmoAXxi&srsltid=AfmBOopr8C5ilxz9KQHVxoZl5Fn2QEB0GlyDFYZx-agnSZf_xXPWK9ky). https://www.csagroup.org/store/product/2431275/?srsltid=AfmBOooThNTBgwNNi-e90gnJT1ZA-PX8xNaRzPTZ7uJhJi-pDmoAXxi&srsltid=AfmBOopr8C5ilxz9KQHVxoZl5Fn2QEB0GlyDFYZx-agnSZf_xXPWK9ky

⁵ See CAN/BNQ 3840-100/2023 standard document.

https://bnq.gc.ca/images/pdf/Sommaire_SOD/SOD_3840-100_EN_2023.pdf

- **Measurement Rules:** CSA R117:24 provides a set of consistent rules to ensure the calculation of recycling process yield is comparable across plastics processing technologies and systems. Proponents of physical and chemical recycling technologies should follow the measurement rules set out in CSA R117:24.
- **Mass Balance Accounting:** Mass balance accounting is a chain of custody (CoC) model that allows for the mixing of recycled and virgin materials while ensuring that the claimed amount of recycled material in the final product is accurately traced, documented, and verified. The CPP follows the definition for mass balance accounting referenced in CAN/BNQ 3840-100/2023 standard regarding recycled plastic content.

Allocation Under Mass Balance Accounting

The CPP supports mass balance accounting methodologies that include:

- **Proportional Allocation:** A mass balance accounting method which assigns the percentage of certified input materials equally across all output materials (polymers, chemicals, fuels, and losses) based on their share of the total output. While this model is supported, the CPP does not consider the conversion of plastics to energy or fuels an acceptable plastics recycling pathway, as noted in the section below.
- **Non-Proportional – Fuel-Exempt Allocation:** A mass balance accounting method using non-proportional allocation with a deduction for fuels and other process losses. Units directed to fuel cannot be counted to other products; recycled units are lost from the system regardless of whether the fuel is used on-site or sold as a product stream.
- **Non-Proportional – Polymers-Only:** A mass balance accounting method using non-proportional allocation where only outputs directly linked to the production of polymers can be freely allocated, and recycled units to all other outputs are considered lost from the system.

These methods of mass balance accounting are described in ISO 22095 on CoC, which seeks to provide a systematic, documented, and traceable record of all inputs and outputs within a defined system boundary.

The CPP does not support the book and claim CoC model, which is distinct from the mass balance model and its implementation methods, and is referenced in ISO 22095.

Recycling Pathways that Produce Non-Plastic Outputs

In a circular plastics economy, efforts should be made to reuse plastics and/or chemical building blocks and reintegrate them for use in new products, displacing the need for virgin resins and materials. The goal is to recirculate materials continuously after their current cycle of use, while employing recycling processes which minimize energy use, emissions, and waste.

Closed-loop recycling enables plastics, polymers, monomers, or chemical building blocks to be repeatedly reused to displace the same materials produced from virgin resources.⁶ An example would be recycling a PET bottle back into a new PET bottle.

Open-loop recycling is where plastics, polymers, monomers, or chemical building blocks are reutilized for a purpose other than what they were created for with the potential (but not necessarily) that they may not be subsequently reintroduced into a system that would recycle them (e.g., LDPE flexible plastic packaging being converted into plastic lumber or PET to textiles).⁷

In line with circular economy principles and the waste-to-resource hierarchy,⁸ recycling pathways should give preference to processes that render plastics resins into products that allow those resins to be recovered for the next cycle of production. As such, plastics recycling pathways (mechanical, physical, and chemical) should consider the outputs from their processes using a “best and highest use” lens.

Lastly, in line with these principles, converting plastics to fuels or energy is a pathway which is not accepted under most recycling definitions and circular economy frameworks. CSA R117:24 states that “combustion for energy recovery, which includes auto consumed fuel [use of plastics as recycling process fuel], shall not be considered a recycled output of the recycling process.” As such, the CPP does not include plastics to energy or fuels as an acceptable recycling technology pathway and should be avoided whenever possible.

⁶ See Section 4.2 from CSA Group’s August 2021 report: [Defining Recycling in the Context of Plastics Standards Research](#)

⁷ Ibid.

⁸ More on the waste-to-resource hierarchy here: <https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/municipal-solid/reducing.html>

Policy Considerations

The advancement of physical and chemical recycling technologies in Canada must consider Canada's current and potential future policy and regulatory context, such as Canada's Plastics Science Agenda (CaPSA), waste management and recycling regulations, including Extended Producer Responsibility (EPR), and food-contact regulations from Health Canada (see more below and in CPP's [Insights Paper: Current Definitions of Recycling within the Canadian Policy Landscape](#)).

Aligning on Recycling Definitions and Measurement Approaches: At present, provinces and territories across Canada have adopted various definitions with respect to the recycling calculation and measurement points, which creates inefficiencies and misalignment with Canadian and globally standardized definitions for a circular plastics economy.

Going forward, it is important that provincial and territorial governments adopt effective, reasonable and, most importantly, harmonized methods and protocols for measuring and verifying plastics recycling for the purpose of regulatory compliance, working in collaboration with the regulated community under Canadian EPR schemes (i.e., producers via PROs and recyclers). Alignment with the definitions and rules referenced in this Guidance Document, sourced primarily from "CSA 117:24 Plastics recycling - Definitions, reporting, and measuring" is recommended.

Plastics-to-Energy Pathways: The CPP, as a collective, advocates for a clear and consistent policy framework that does not include plastic converted to energy or fuels via incineration or other technology pathways (i.e., plastics to energy should not be defined as recycling).

Food-Contact Regulatory and Safety Assurance: An important benefit of physical and chemical recycling technologies are their potential to produce "virgin-quality" resins that are inherently food-grade.

However, those looking to use recycled resins for food contact applications must seek evidence of successful decontamination efficiency testing and develop robust strategies for identifying and managing Non-Intentionally Added Substances (NIAS).

In Canada and key export markets, recycled resins must undergo significant safety validation through rigorous, multi-stage processes in order to achieve regulatory approval and certification for food-grade/food-contact recycled materials. These safety and testing requirements are applied to recycled resins on a case-by-case basis to prove recycling processes are reliably removing all potential contaminants from highly variable waste streams by regulatory bodies such as Health Canada, the Food and Drug Administration (FDA) in the United States, and the European Food Safety Authority (EFSA) in the EU.

Physical and chemical recycling may be able to support faster adoption of recycled content in food contact packaging if the process and quality controls mirror those of virgin plastic resin output, and the outputs meet current regulatory requirements for food safety and quality. However, current food contact regulations in Canada include requirements for source separation given they are based on mechanical recycling. The requirements for source separation may need to be reevaluated as it relates to physical and chemical recycling processes, with regulatory and assessment approaches adjusted for these new technologies where relevant to ensure they are efficient and effective while reducing unnecessary technical steps in the process.

Regardless, food contact and post-consumer recycled (PCR) content related regulations should continue to be developed and managed separately from EPR and recycling regulations, with their outcomes being complementary to one another.

CASE STUDY: Applying an Evaluation Framework in Practice

In April 2024, Circular Materials, in collaboration with ÉEQ and Recycle BC, issued a Request for Expressions of Interest (REOI) to identify technologies, systems, and processes for sorting and recycling plastic packaging to identify their technical and economic performance, and level of commercial readiness.

After receiving 15 detailed submissions in response to the REOI (including four physical and chemical technology solutions), an evaluation matrix was developed that involved undertaking both qualitative and technical and economic assessments (TEAs) of the 15 submissions using specific performance criteria to assess the potential for engagement under commercial agreement for the relevant technologies, systems, and processes. The TEA criteria of recycling processes included process yield and yield sensitivities, energy use, emissions, technological readiness, and unit cost.

The REOI evaluation matrix and criteria (which were developed prior to the CPP's framework) sought to align with OPLN's Responsible Production Guidelines for Advanced/Chemical/Molecular Recycling in order to systematically evaluate the recycling technology performance, as well as their potential environmental and economic impacts (see Figure 2 on page 15).

However, it should be noted that the criteria evaluated as part of the REOI process are not in full alignment with CPP's Guidance Document and evaluation framework (i.e., the four pillars and 22 indicators described above).

For example, while social and human rights criteria were not specifically evaluated as part of the Circular Materials REOI framework, their assessment did factor in the role of existing environmental and human rights laws and regulations in Canada where these technologies would be deployed and assumed that these existing laws and regulations are effective at protecting workers and communities.

In addition, no particular weighting was applied to criteria. However, technologies that could produce hazardous materials with no pathway for managing these materials were deemed 'no goes.'

It should also be noted that the CPP was not directly involved in the development or design of the REOI evaluation process and, as such, is not in a position to endorse the outcomes.


Figure 2: Evaluation Criteria from the REOI Process.

Recycling Technology & Performance



Environmental Characteristics



- 
LEVEL OF READINESS
 - What is the scale of the facility and are there barriers from reaching full scale operation?


- 
THROUGHPUT CAPACITY
 - What is their current processing capacity?

- 
INBOUND COMPOSITION SPECIFICATIONS
 - What are the contaminations implications and tolerances that can be accepted?
 - What are the mitigation strategies and current sorting capabilities?


- 
OUTBOUND PRODUCT SPECIFICATIONS
 - What is produced and what is its application?
 - What is the quality of resin, polymer, monomer, etc., being produced including physical properties?


- 
SYSTEM BOUNDARIES
 - What is their technology and process capability based on inputs and outputs to production of targeted products


- 
PROXIMITY & INTERCONNECTIVITY
 - What is their proximity to CM PCF's/MRF's and end-markets?
 - What are their arrangements for additional processing?

- 
FUTURE INNOVATION?
 - What is their ability and willingness to evolve and improve over time?
 - What is their ability to adapt and scale to changing demands?

- 
REGULATORY COMPLIANCE
 - Are they compliant and/or working to be compliant with local, regional and federal regulations?

- 
ENERGY CONSUMPTION
 - What are the energy requirements and sourced, environmental and economic implications of energy mix?

- 
RECYCLING EFFICIENCY
 - What are the steps involved in the system to produce targeted products including sorting, recycling and further processing to yield a recycled materials.
 - What are the yield of targeted products from input to waste?

- 
LIFE CYCLE ASSESSMENT (LCA)
 Assessment of environmental impacts of entire lifecycle of targeted products (following ISO 14040:2006, Environmental management – Life cycle assessment – principles and framework)

Source: [Circular Materials \(2025\)](#).

Figure 2: Evaluation criteria from the REOI process (continued).

Economic Characteristics



CAPITAL COSTS

- If not at commercial scale, what is the investment required for operationalizing technology or process (including machinery, infrastructure, land, etc.)?



OPERATING COSTS

- What are the key cost drivers including labour, maintenance, utilities, raw materials, etc.?
- What is the frequency and cost of scheduled and unscheduled downtime and maintenance?



PRICING MATRIX

- What are the toll pricing matrix for producing a unit of targeted output; factoring in required thresholds?



REVENUE

- What have been historical and projected commodity pricing for targeted products?

Source: [Circular Materials \(2025\)](#).

Additional Resources

Below is a short list of relevant reports and supporting technical resources on physical and chemical recycling technologies and the circular economy that may provide additional value to readers of this Guidance document. Resources are hyperlinked to the publications.

- [Ocean Plastics Leadership Network \(2024\). Responsible Production Guidelines for ACM Recycling.](#)
- [US Plastics Pact \(2025\). Position on the Role of Physical and Chemical Recycling in a Circular Economy for Plastic Packaging.](#)
- [Sustainable Packaging Coalition \(2024\). Position Statement on Chemical Recycling.](#)
- [CSA Group \(2021\). Defining Recycling in the Context of Plastics.](#)
- [CSA Group \(2024\). CSA R117:24 Plastics recycling — Definitions, reporting, and measuring.](#)
- [SCS Standards \(2025\). Certification Standard for Responsible Advanced / Chemical / Molecular \(Chemical\) Recycling.](#)
- [Conference Board of Canada \(2022\). Infinite Cycles: Canada's Innovation Competitiveness in Chemical Plastics Recycling.](#)
- [The Consumer Goods Forum \(2022\). Chemical Recycling in a Circular Economy for Plastics.](#)
- [Eunomia \(2022\). Feedstock Quality Guidelines for Pyrolysis of Plastic Waste.](#)
- [Closed Loop Partners \(2021\). Accelerating Circular Supply Chains for Plastics.](#)
- [Closed Loop Partners \(2022\). Transitioning to a Circular System for Plastics: Assessing Molecular Recycling Technologies in the United States and Canada.](#)



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